

DOCKET NO: 241051US26YA

IN THE UNITED STATES PATENT & TRADEMARK OFFICERECEIVED  
CENTRAL FAX CENTER

AUG 28 2007

IN RE APPLICATION OF :

HITOSHI KOSUGI :

EXAMINER: HUSBAND, SARAH E.

SERIAL NO: 10/673,254 :

FILED: SEPTEMBER 30, 2003 :

GROUP ART UNIT: 1746

FOR: METHOD AND APPARATUS FOR  
DISPENSING A RINSE SOLUTION ON A  
SUBSTRATEPROPOSED UNOFFICIAL CHANGES

Dear Examiner Husband:

Please see below proposed changes to be discussed during an interview to be scheduled.

Please call me at (703) 412-7033 to discuss a time for interviewing this case.

Ron Rudder

\*\*\*\*\*

1. (PROPOSED): A rinse solution nozzle assembly for dispensing a rinse solution on a substrate, comprising:

a first nozzle array including at least one nozzle, having a central axis disposed over a center of the substrate, and configured to dispense said rinse solution substantially near the center of said substrate;

Application No. 10/673,254

**DISCUSSION PURPOSES ONLY: DO NOT ENTER**

a first control valve coupled to said first nozzle array and configured to actuate a first flow rate of said rinse solution through said first nozzle array;

a second nozzle array including a plurality of nozzles, said nozzles arranged at fixed positions along a radial span aligned with the central axis and extending from near center of the substrate toward a perimeter of the substrate and configured to dispense said rinse solution across the radial span on a side of the substrate facing the first nozzle array;

a second control valve coupled to said second nozzle array and configured to actuate a second flow rate of said rinse solution through said second nozzle array; and

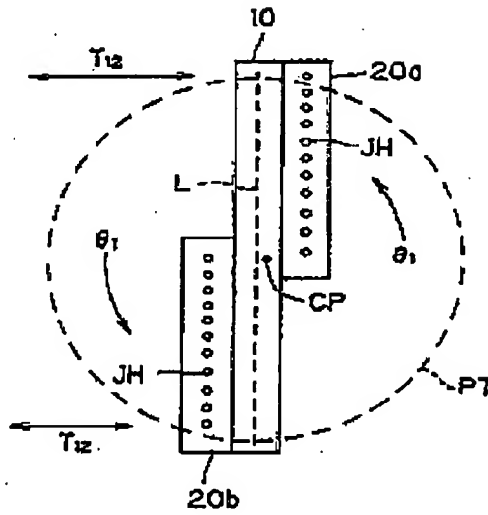
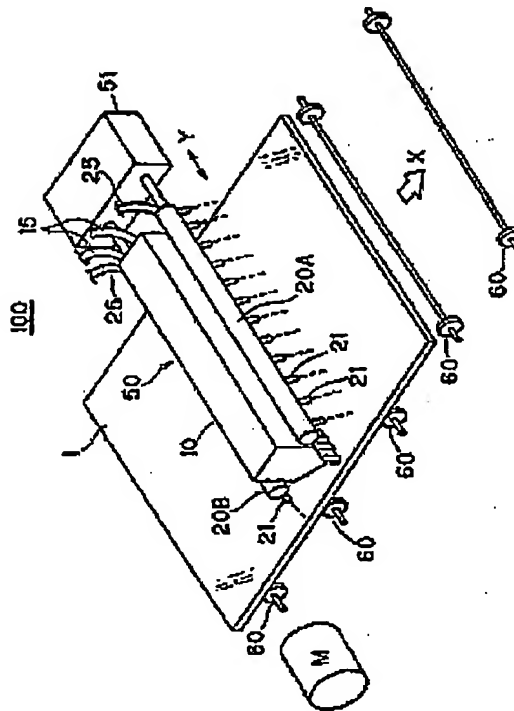
a fluid supply line supplying the rinse fluid both to the first control valve and to the second control valve.

**COMMENTS**

Yoshitani et al do not show that the high-pressure rinsing nozzles 20a and 20b are aligned with a central axis of the ultrasonic rinsing nozzle 10.

Rather, Yoshitani et al show in Figure 12 (applied in the Office Action for a teaching of multiple nozzle arrays) that nozzle arrays 20A and 20B attached to along beside nozzle array 10. Figure 12 reproduced below for the sake of convenience clearly shows that the center position (denoted as CP) is displaced from either nozzle arrays. The Examiner's attention is also invited to Figure 13 of Yoshitani et al which provides a perspective view of this arrangement.

Application No. 10/673,254

**DISCUSSION PURPOSES ONLY: DO NOT ENTER****FIG. 12****FIG. 13**

Application No. 10/673,254

**DISCUSSION PURPOSES ONLY: DO NOT ENTER**

To modify Yoshitani et al such that nozzle array 20A or nozzle array 20B would be aligned with the center point CP would require substantial rework of not only the ultrasonic rinsing nozzle 10 and the high-pressure rinsing nozzles 20A and 20B, but also the ringing tubes 15 and 25. Thus, Applicant submits that one of ordinary skill in the art at the time of the invention would be discouraged from making such a modification to Yoshitani et al.

Moreover, Yoshitani et al disclose that one purpose of the rinsing configuration of Figure 13 is to combine ultrasonic and high pressure rinsing parallel in time "while translating the glass substrate 1 for a liquid crystal display relative to each other." See Yoshitani et al, col. 15, lines 22-31. To modify Yoshitani et al as described above would render Yoshitani et al unsatisfactory for its intended purpose of cleaning a TFT substrate by a relative translation. With high-pressure ringing nozzles aligned with the center position CP, the high-pressure rinsing nozzles would not extend across the width of the TFT substrate and, as the TFT substrate was relatively translated, the high pressure rinse would not wash the entire surface of the TFT substrate.